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ROBERT A. KENT P.O. BOX 1431 DUNCAN, OK 73536			EXAMINER GEBRESILASSIE, KIBROM K	
			ART UNIT 2128	PAPER NUMBER
			NOTIFICATION DATE 03/20/2009	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/728,295	Applicant(s) SOLIMAN ET AL.	
	Examiner KIBROM K. GEBRESILASSIE	Art Unit 2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 01/08/2009 has been entered.
2. Claims 1-29 are presented for examination.

Response to Arguments

3. Applicants are thanked for amendments/Remarks.
4. Applicant's amendment to the Specification is considered and entered.
5. Applicant's argument relating to 112, second paragraph, rejection is persuasive and therefore the rejection is **withdrawn**. However, note new 112 rejection.
6. Applicant's argument relating 101 rejection is persuasive and therefore the rejection is **withdrawn**. However, note new 101 rejection.
7. Applicant's argument relating to art rejection is not persuasive and therefore the rejection is **maintained**.
 - a. Applicants argue, *applicants simply disagrees that Soliman et al discloses determination of the optimized number, based, at least in part, on one or more of: the geomechanical maximum number of fractures; and the predicted stress field based on the geomechanical stresses induced by each fracture (See: Remarks, page 13).*

In response, Soliman et al teaches:

...determining the optimum number of fractures intercepting a horizontal well, and the mechanism of fluid into fractures horizontal well... (See: Summary, page 966)...

...to determine the optimum number of fractures...(See: page 968, right side column last paragraph)...

...Fig. 12 is a schematic representing one simulator run for the case of two fractures (i.e. number of fractures)...; (See: page 969, left side column)...

b. Applicants argue, there is no disclosure of further **determining the placement and size of each of these fractures.** Soliman simply does not disclose this limitation (See: Remarks page 13).

In response, Soliman et al discloses the limitation of *determining the placement and size of each of fracture* in the following portion of the reference.

For example, Soliman et al discloses:

...the paper discusses the fracture orientation with respect to a horizontal well-bore, locating a horizontal well to optimize fracture height (i.e. determining size of one or more fracture), determining the optimum number of fractures intercepting a horizontal well...(See: Abstract)...

...to optimize the placement of horizontal section of a well. The horizontal placement is designed to give optimum fracture height...(i.e. placement and size of fracture)...(See: page 970, middle Column)...

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...stress varying through the pay zone, optimum placement of the horizontal wellbore can be determined (i.e. determining placement of one or more fractures)... (See: page 971, middle Column last paragraph)....

Further, Figure 2 clearly shows the generation of number of fractures, placement of fractures, and size of fractures based on stresses as seen below:

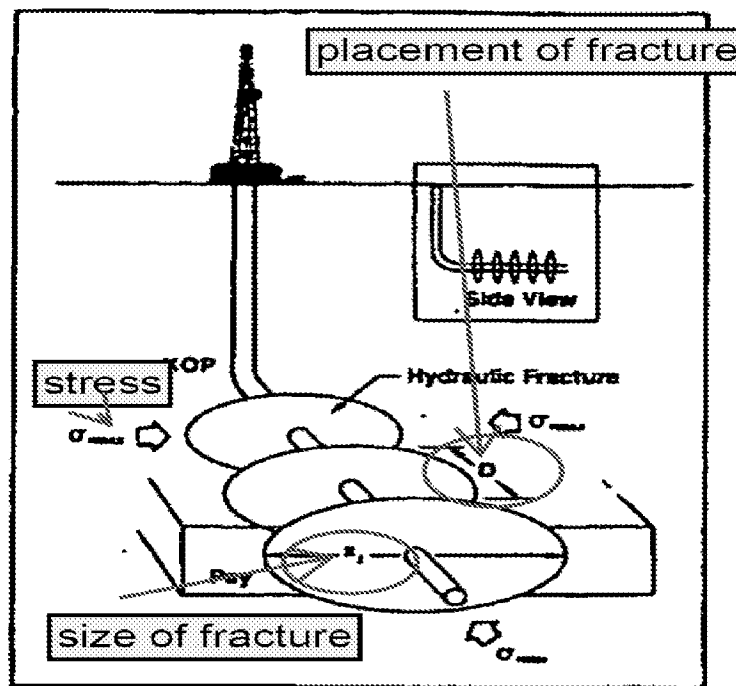


Fig. 2—Horizontal segment parallel to least stress (σ_{Hmin}).

Where,

$C_1, C_2,$

C_3 = variables in Laplace space

D = fracture spacing, ft

F_x = ratio of tail-in length to total fracture length

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w	= fracture width, ft
x_f	= fracture half-length, ft
x_f'	= length of tail-in, ft
x,y	= space coordinates, ft

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

9. A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to

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be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

10. Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1 and 24 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 29, 34, and 39 of U.S. Patent No. 7, 104, 320. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1, 29, 34, and 39 of Patent No. 7, 104, 320 contains every elements of claims 1 and 24 of the instant application and thus obvious over the claims of the instant application. The only difference between the claims is drilling vertical and horizontal wellbore, which is recited in the patent claims. In order to determine the number of fractures, there must have some kind of drilling whether it is horizontal or vertical. Therefore, it would have obvious to one of ordinary skill in the art to include the horizontal and vertical drilling to the later application for determination of number of fractures. Claims of the instant application therefore are not patently distinct from the earlier patent claims and as such are unpatentable over obvious-type double patenting. A later application claims are not patentably distinct from an earlier claims if the later claims are obvious by the earlier claims.

Claim Rejections - 35 USC § 101

12. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

13. Claims 18-23 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter since the claims as a whole are drawn to **program per se** and do not provide for a practical application, as evidenced by lack of physical transformation or a useful, tangible, and concrete result.

Claim Rejections - 35 USC § 112

14. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

15. Claims 1-29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

For example, claims 1, 18, and 24 recite:

*determining one or more geomechanical **stresses induced by each fracture** based on the dimension and location of each fracture;*

According to the above limitation, the stress is determined based on **each fracture**. In this case, the numbers of fractures are already known because the stress is determined by **each fracture**.

Then step two of the claim 1 recites,

determining a geomechanical maximum number of fractures based on the geomechanical stresses induced by each of the fractures;

This limitation indicated to determine the maximum number of fractures which is already known from the first step wherein the stress is determined by **each fracture**. Therefore, this step is redundant. Whether it is called maximum or minimum, it is determining which is already determined in previous step.

Then, step three of the claims recites,

determining a predicted stress field based on the geomechanical stresses induced by each fracture;

Well, the above recited limitation is just determining which already predicted stress. Therefore, to determine a stress that is already predicted stress could fail to comply with the enablement requirement. Further, the specification does not describe or define how the determination of a predicted stress was done. Does this mean determining a total stress based on the stresses induced by each fracture?

Further, claims 1, 18, and 24 recite:

generating an optimized number, placement and size for one or more fractures...;

It would have been obvious to one of ordinary skill in the art that the "generating number of fractures" could be derived from step (a) or step (b) because at least it indicated that the determination of number of fractures.

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Therefore, it is possible to generate the number of fracture. However, it fails to comply with enablement requirement for "**generating placement** for one or more fractures" and "**generating of size** for one or more fracture". It is proper to raise the question from where these two elements come from. Does this mean if the number of fracture known, then it is inherent to "generating placement and size for one or more fractures"?

Therefore, as per claim 1, it fails to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention at least for the above reasons. If step (a) is valid then step (b) would be invalid because the determination of number of fracture of step (b) is already determined by induced stresses by **each fracture** and therefore number of fracture is already determined (i.e. step (b) is invalid). Or if step (b) is valid then step (a) would be invalid because the determination of number of fracture is based on **stresses** induced by each fracture and therefore stress is already determined (i.e. step (a) is invalid).

16. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

17. Claims 1-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

c. As per claims 1, 18, and 24, for example, in step (a) indicates *determining stresses induced by **each fractures***. This means, the number of fractures is

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already determined and therefore to determine the number of fractures based on stress of step (b) that is already determined in step (a) is redundant. Therefore, it is vague and indefinite.

d. At step (d), it is obvious to generate a number of fractures because at step (b), it is clearly described or defined the determination of number of fracture.

However, it is unclear how "placement" and "size" of the fracture generated.

Does this mean if the number of fractures are determined and generated, then the "placement" and "size" of the fractures are also generated? Therefore, step (d) is vague and indefinite. Further, it might miss a step to link the limitation of "generating placement and size for one or more fractures" with the rest steps of (a) to (c).

e. Claims 16 recites "generally", which is a relative word and therefore vague and indefinite.

18. Claims 1-29 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: generating placement and size for one or more fracture with the rest of the steps (a) to (c). There is a clear connection between generating number one or more fracture with steps (b) because a determination of number of fracture is made, but not for elements "placement" and 'size.

Claim Rejections - 35 USC § 102

19. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

20. Claims 1-7, 16-22, and 24-28 are rejected under 35 U.S.C. 102(b) as being anticipated by M.Y. Soliman, J. L. Hunt, and A. M. El Rabaa, “Fracturing Aspects of Horizontal wells”, 1990 Society of Petroleum Engineers.

f. As per Claim 1, Soliman discloses a method of optimizing a number, placement and size of fractures in a subterranean formation (See: “Summary” in page 966) comprising the steps of:

(a) determining one or more geomechanical stresses induced by each fracture based on the dimensions and location of each fracture (See: page 967, “Determining Magnitude and Orientation of Least Principal Stress” and also Figs. 1 and 2);

(b) determining a geomechanical maximum number of fractures based on the geomechanical stresses induced by each of the fractures (such as...*reaching five fractures after a month(i.e. five fractures are maximum number of fractures) but declined to only two fractures after 24 month...*;See: page 969, middle column, lines 9-13);

(c) determining a predicted stress field based on the geomechanical stresses induced by each fracture (See: page 967, “Determining Magnitude and Orientation of Least Principal Stress”); and

(d) generating an optimized number, placement and size for one or more fractures in subterranean formation (See: Figs. 15, 16, 17, table 2 and corresponding texts), where generating the optimized number, placement and size for one or more fractures in a subterranean formation is based, at least in part, one or more of:

the geomechanical maximum number of fractures (such as...*reaching five fractures after a month (i.e. five fractures are maximum number of fractures) but declined to only two fractures after 24 month...*; See: page 969, middle column, lines 9-13); and the predicted stress field based on the geomechanical stresses induced by each fracture (See: page 967, “Determining Magnitude and Orientation of Least Principal Stress”).

g. As per Claim 2, Soliman discloses the method according to claim 1, wherein steps (a), (b), and (c) are performed prior to creating any of the fractures in the subterranean formation (such as ...*a simulated fracture is initiated...*; see: page 971, left side, lines 5-10).

h. As per Claim 3, Soliman discloses the method according to claim 1, further comprising the steps of: determining a cost-effective number of fractures; determining an optimum number of fractures, where the optimum number of fractures is the maximum cost-effective number of fractures that does not exceed

the geomechanical maximum number of fractures (such as *determine the optimum location of the well to yield maximum exposure of the pay zone...*; See: page 970, right side, lines 15-17).

i. As per Claim 4, Soliman discloses the method according to claim 1, further comprising the step of spacing the fractures a uniform distance from each other (See: Fig. 2).

j. As per Claim 5, Soliman discloses the method according to claim 1, further comprising the step of creating the fractures with a uniform size (such as *...fractures are identical in physical dimensions....*; see: page 969, left side column, lines 3-5).

k. As per Claim 6, Soliman discloses the method according to claim 1, further comprising the steps of: creating one or more fractures in the subterranean formation; and repeating steps (a), (b), and (c) after each fracture is created (such as *...multiple fractures may be created...*; See: "Conclusion" lines 1-3).

l. As per Claim 7, Soliman discloses the method according to claim 6, wherein the repeating step comprises the steps of gathering and analyzing real-time fracturing data for each fracture created (such as *...an actual well was logged between....*; See: page 971, right side, lines 1-4; Table 2).

m. As per Claim 16, Soliman discloses the method according to claim 1, wherein the subterranean formation comprises a well bore comprising a

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generally vertical portion (such as ...*vertical fracture*....; see: page 967, right side column, lines 36-40; Fig. 3 *Vertical and horizontal wellbore*).

n. As per Claim 17, Soliman discloses the method according to claim 16, wherein the well bore further comprises one or more laterals (Fig. 2).

o. As per Claims 18-22, 24-28, the limitations of claims 18-22, 24-28 have already been discussed in the rejection of Claims 1-3, 6, and 7. They are therefore rejected under the same rationale.

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

22. Claims 8-15, 23, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over M.Y. Soliman, J. L. Hunt, and A. M. El Rabaa, "Fracturing Aspects of Horizontal wells", 1990 Society of Petroleum Engineers as applied to claims 1-7, 16-22, and 24-28 above, and further in view of D.W. Sobernheim,..."An Integrated Technique

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to Optimize the Completions in Low Permeability Gas Reservoirs While Improving Efficiency and Productivity”, SPE 84171, 2003.

p. As per Claim 8, Soliman discloses the method according to claim 7, wherein a well is placed in the subterranean formation, the well comprising a wellhead, a tubing, and a well bore, the well bore comprising a downhole section (See: Fig. 3).

However, Soliman et al fails expressly to disclose and wherein the gathering of real-time fracturing data comprises the steps of: (i) measuring a fracturing pressure while creating a current fracture; (ii) measuring a fracturing rate while creating the current fracture; and (iii) measuring a fracturing time while creating the current fracture.

Sobernheim et al discloses and wherein the gathering of real-time fracturing data comprises the steps of: (i) measuring a fracturing pressure while creating a current fracture; (ii) measuring a fracturing rate while creating the current fracture; and (iii) measuring a fracturing time while creating the current fracture (See: page 5, section “Realtime Production monitoring”).

It would have been obvious to one ordinary skill in the art to combine the teaching of Sobernheim et al with the teaching of Soliman et al because both references concern with reservoir engineering and fracture formation. The motivation to do so would be to compare an actual production data on a well-by-well basis to the model predicted values (Sobernheim et al).

q. As per Claim 9, Soliman fails expressly to disclose one or more transducers located at the wellhead. However, the limitation, one or more transducers, is deemed to be inherent to the teaching of Soliman as page 970 right side column, lines 4-14, which shows determination of pressure. The determination of pressure will be impossible if there is no any sensing device at the wellhead in the system of Soliman.

r. As per Claim 10, Soliman fails expressly to disclose one or more transducers located at the down hole. However, the limitation, one or more transducers, is deemed to be inherent to the teaching of Soliman as page 970 right side column, lines 4-14, which shows determination of pressure. The determination of pressure will be impossible if there is no any sensing device at the down hole in the system of Soliman.

s. As per Claim 11, Soliman discloses the method according to claim 8, wherein the fracturing pressure is measured in the tubing (See: Fig. 3).

t. As per Claim 12, Sobernheim et al discloses the method according to claim 7, wherein analyzing of real-time fracturing data comprises the steps of: determining a new stress field, based on the real-time fracturing data; and comparing the new stress field with the predicted stress field (See: Summary).

u. As per Claim 13, Sobernheim et al discloses the method according to claim 12, further comprising the step of decreasing the number of fractures in response to the real-time fracturing data (See: Summary).

- v. As per Claim 14, Sobernheim et al discloses the method according to claim 12, further comprising the step of increasing the distance between the fractures in response to the real-time fracturing data (See: Summary).
- w. As per Claim 15, Sobernheim et al discloses the method according to claim 12, further comprising the step of adjusting the size of the fractures in response to the real-time fracturing data (such as *...the values can then be compared with the fracture design predicted numbers and appropriate adjustments to the retained factors used in the fracturing simulator made...*; See: page 4, section "Calibration of the Production Model" paragraph three).
- x. As per Claims 23, and 29, the limitations of claims 23, and 29 have already been discussed in the rejection of Claim 12. They are therefore rejected under the same rationale.

23. **Support for Amendments and Newly Added Claims**, Applicants are respectfully requested, in the event of an amendment to claims or submission of new claims, that such claims and their limitations be directly mapped to the specification, which provides support for the subject matter. This will assist in expediting compact prosecution. MPEP 714.02 recites: "Applicant should also specifically point out the support for any amendments made to the disclosure. See MPEP § 2163.06. An amendment which does not comply with the provisions of 37 CFR 1.121(b), (c), (d), and (h) may be held not fully responsive. See MPEP § 714." Amendments not pointing to

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specific support in the disclosure may be deemed as not complying with provisions of 37 C.F.R. 1.131(b), (c), (d), and (h) and therefore held not fully responsive. Generic statements such as "Applicants believe no new matter has been introduced" may be deemed insufficient.

24. **Requests for Interview**, In accordance with 37 CFR 1.133(a)(3), requests for interview must be made in advance. Interview requests are to be made by telephone (571-272-8634) call or FAX (571-273-8634). Applicants must provide a detailed agenda as to what will be discussed (generic statement such as "discuss §102 rejection" or "discuss rejections of claims 1-3" may be denied interview). The detail agenda along with any proposed amendments is to be written on a PTOL-413A or a custom form and should be faxed (or emailed, subject to MPEP 713.01.I / MPEP 502.03) to the Examiner at least 3 days prior to the scheduled interview.

Interview requests submitted within amendments may be denied because the Examiner was not notified, in advance, of the Applicant Initiated Interview Request and due to time constraints may not be able to review the interview request to prior to the mailing of the next Office Action.

Conclusion

25. All claims are rejected.

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

y. US Patent No. 5, 894, 888 issued to Wiemers et al discloses method of forming spaced fractures in subterranean zone (See: Abstract).

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27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kibrom K. Gebresilassie whose telephone number is 571-272-8571. The examiner can normally be reached on 8:00 am - 4:30 pm Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini S. Shah can be reached on 571-272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kamini S Shah/
Supervisory Patent Examiner, Art
Unit 2128

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Examiner, Art Unit 2128